

SOME FIELD OBSERVATIONS ON *NOTHYBUS* (DIPTERA, NOTHYBIDAE)

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Synopsis

Notes on behaviour of adults of *Nothybus decorus* and a related species made in the field in Malaysia are given. Mention is made of apparent aggressive Batesian mimicry in *N. decorus*.

Introduction

The family Nothybidae, containing the single genus *Nothybus*, is, so far as known, restricted to the Oriental Region. Important recent works on the family are those of Aczél (1955) and Frey (1958). Eight species are recognized, but as neither worker had seen all the species, no completely adequate key to the species exists. The group was first allowed family rank by Frey (1927). Aczél (1955), through an erroneous appraisal of the morphology, regarded the family as representing a separate superfamily from all other families of Acalyptrate Diptera. The systematic position of the family remains in doubt, as Hennig (1958) and Griffiths (1972) have reached very different conclusions on this subject. No information on habits and biology of the family has previously been published and the immature stages are unknown.

Origin and Identification of Material

I observed and captured living specimens of *Nothybus* at two localities in Malaysia in June 1973. The first locality was at Templer Park, a forest reserve close to the city of Kuala Lumpur; the second was on the road from Kuala Lumpur to Bentong about 2 km. east of the junction of the road to Genting Highlands.

At Templer Park one male specimen was observed and subsequently captured. This is identified as *N. decorus* de Meijere, 1924, from its very close agreement with the original description based on material from northern Sumatra. I cannot exclude the possibility that *N. lineifer* Enderlein, 1922, described from north-eastern Sumatra, is the same species, but Enderlein's description is inadequate. In the Genting Highlands vicinity several specimens were observed and eight were captured, both sexes being represented. Six of these specimens are *N. decorus*. The other two belong to a distinct species, showing points of resemblance to *N. trigguttatus* Bezzi, 1917 (described from Mindanao), but probably distinct. No differences in behaviour were noted between individuals of the different species, or between the sexes of *N. decorus* at this locality.

The only previous habitat record for *Nothybus* is given by Brunetti (1913), who records that the type material of *N. kempi* (Brunetti) was taken "by sweeping in thick jungle". My material was found at the edge of tracks in the rain forest, not far from running water and under very humid conditions.

Field Observations

Templer Park, 14.vi.1973. One specimen of *Nothybus* (later determined as a male) was observed among leaves of an araceous plant between 30 and 80 cm. above the ground. It hovered for periods of less than a minute, then settled and walked on the upper surface of leaves for a period before hovering again. When I attempted to place a small net in an appropriate position for capture, the fly hovered over my arm (which was damp with perspiration) and struck it rapidly two or three times with the abdomen as if attempting to sting or lay eggs. When placed in a glass jar, the body was held subparallel with the substrate with the abdomen sagging a little posteriorly. The wings were held slightly raised above abdomen with anal margins just touching each other, the costal margins held higher than anal margins. The wings were therefore sloping upwards from base to apex and from posterior margin to anterior margin. Sometimes the wings were held more widely spread.

Vicinity of Genting Highlands, 15.vi.1973. Specimens of *Nothybus* were seen on low foliage by the side of a track through the rain forest in a sheltered valley. Specimens walked at moderate speed on upper surfaces of various horizontal leaves close to the ground, always moving forwards and never reversing even when reaching the edge of a leaf. When walking all legs were used, but when coming to rest, often at the edge of a leaf, the white (*N. decorus*) or bicoloured (other species) fore tarsi were extended forwards and waved as in many micropezids. The wings were held as described above.

Discussion

Comparison of behaviour of *Nothybus* with that of other acalyptate flies is difficult because of the paucity of published data. In life the adult is reminiscent of the family Micropezidae because of the elongate body and legs and the habit of frequently waving the fore-legs. The fore-legs are waved by representatives of numerous other families (see McAlpine, 1966). In the Micropezidae the fore-legs are frequently waved by species of *Mimegralla* and *Crepidochetus*, but not by *Metopochetus terminalis* (Walker). The carriage of the wings is unlike that of the micropezids with which I am familiar (tribes Calobatini, Eurybatini, and subfamily Taeniapterinae), in that these hold the wings totally flexed and flat on the dorsal surface of the abdomen. The habit of hovering between resting places also contrasts with the behaviour of those micropezids known to me. The micropezids generally dart rapidly from one place to another and I have never observed them to hover. Many drosophilids hover for at least short periods and the curtonotid fly *Axinota* often does so for prolonged periods before alighting on vegetation.

Mimicry of stinging Hymenoptera by Diptera is a very well known phenomenon, especially in the tropics. It is probable that the appearance of the two *Nothybus* species observed is adapted to mimicry of either pompilid or ichneumonid wasps. The carriage of the wings is particularly like that of Pompilidae, but I did not observe any possible pompilid models in the same habitat. The extraordinary aggressive behaviour.

which I observed at Templer Park, I can only interpret as an extreme example of behavioural Batesian mimicry. Nicholson (1927:58) records somewhat similar behaviour in a mycetophilid fly (later named *Nicholsonomyia vespiformis* Tonnoir, 1929) which is a mimic of *Polistes* sp. Nicholson's astonishment at finding that his attacker was a harmless mycetophilid, must have equalled my own when I was attacked by *Nothybus*—otherwise a much less convincing mimic.

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